FORM LG-4878

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8EHQ-0992-13166

(1)

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
WILMINGTON, DELAWARE 19898

LEGAL DEPARTMENT

19

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Document Processing Center (TS-790)
Office of Pollution Prevention and Toxics
Environmental Protection Agency
401 M Street., S.W.
Washington, D.C. 20460
Attn: Section 8(e) Coordinator (CAP Agreement)

Dear Coordinator:

8ECAP-0025

On behalf of the Regulatee and pursuant to Unit II B.1.b. and Unit II C of the 6/28/91CAP Agreement, E.I. Du Pont de Nemours and Co. hereby submits (*in triplicate*) the attached studies. Submission of this information is voluntary and is occasioned by unilateral changes in EPA's standard as to what EPA now considers as reportable information. Regulatee's submission of information is made solely in response to the new EPA §8(e) reporting standards and is not an admission: (1) of TSCA violation or liability; (2) that Regulatee's activities with the study compounds reasonably support a conclusion of substantial health or environmental risk or (3) that the studies themselves reasonably support a conclusion of substantial health or environmental risk.

The "Reporting Guide" creates new TSCA 8(e) reporting criteria which were not previously announced by EPA in its 1978 Statement of Interpretation and Enforcement Policy, 43 Fed Reg 11110 (March 16, 1978). The "Reporting Guide states criteria which expands upon and conflicts with the 1978 Statement of Interpretation. Absent amendment of the Statement of Interpretation, the informal issuance of the "Reporting Guide" raises significant due processes issues and clouds the appropriate reporting standard by which regulated persons can assure TSCA Section 8(e) compliance.

For Regulatee,

Mark H. Christman
Counsel
Legal D-7158
1007 Market Street
Wilmington, DE 19898
(302) 774-6443

COPY

8ECAP

ATTACHMENT 1

Submission of information is made under the 6/28/91 CAP Agreement, Unit II. This submission is made voluntarily and is occasioned by recent changes in EPA's TSCA §8(e) reporting standard; such changes made, for the first time in 1991 and 1992 without prior notice and in violation of Regulatee's constitutional due process rights. Regulatee's submission of information under this changed standard is not a waiver of its due process rights; an admission of TSCA violation or liability, or an admission that Regulatee's activities with the study compounds reasonably support a conclusion of substantial risk to health or to the environment. Regulatee has historically relied in good faith upon the 1978 Statement of Interpretation and Enforcement Policy criteria for determining whether study information is reportable under TSCA §8(e), 43 Fed Reg 11110 (March 16, 1978). EPA has not, to date, amended this Statement of Interpretation.

After CAP registration, EPA provided the Regulatee the June 1, 1991 "TSCA Section 8(e) Reporting Guide". This "Guide" has been further amended by EPA, EPA letter, April 10, 1992. EPA has not indicated that the "Reporting Guide" or the April 1992 amendment supersedes the 1978 Statement of Interpretation. The "Reporting Guide" and April 1992 amendment substantively lowers the Statement of Interpretation 's TSCA §8(e) reporting standard[2]. This is particularly troublesome as the "Reporting Guide" states criteria, applied retroactively, which expands upon and conflicts with the Statement of Interpretation.[3] Absent amendment of the Statement of Interpretation, the informal issuance of the "Reporting Guide" and the April 1992 amendment clouds the appropriate standard by which regulated persons must assess information for purposes of TSCA §8(e).

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[2]In sharp contrast to the Agency's 1977 and 1978 actions to soliciting public comment on the proposed and final §8(e) Policy, EPA has unilaterally pronounced §8(e) substantive reporting criteria in the 1991 Section 8(e) Guide without public notice and comment, See 42 Fed Reg 45362 (9/9/77), "Notification of Substantial Risk under Section 8(e): Proposed Guidance".

[3]A comparison of the 1978 Statement of Interpretation and the 1992 "Reporting Guide" is a appended.

Throughout the CAP, EPA has mischaracterized the 1991 guidance as reflecting "longstanding" EPA policy concerning the standards by which toxicity information should be reviewed for purposes of §8(e) compliance. Regulatee recognizes that experience with the 1978 Statement of Interpretation may cause a review of its criteri. Regulatee supports and has no objection to the Agency's amending reporting criteria *provided that* such amendment is not applied to the regulated community in an unfair way. However, with the unilateral announcement of the CAP under the auspices of an OCM enforcement proceeding, EPA has wrought a terrific unfairness since much of the criteria EPA has espoused in the June 1991 Reporting Guide and in the Agency's April 2, 1992 amendment is new criteria which does not.exist in the 1978 Statement of Interpretation and Enforcement Policy.

The following examples of new criteria contained in the "Reporting Guide" that is not contained in the Statement of Interpretation follow:

- o even though EPA expressly disclaims each "status report" as being preliminary evaluations that should not be regarded as final EPA policy or intent[4], the "Reporting Guide" gives the "status reports" great weight as "sound and adequate basis" from which to determine mandatory reporting obligations. ("Guide" at page 20).
- o the "Reporting Guide" contains a matrix that establishes new numerical reporting "cutoff" concentrations for acute lethality information ("Guide" at p. 31). Neither this matrix nor the cutoff values therein are contained in the Statement of Interpretation. The regulated community was not made aware of these cutoff values prior to issuance of the "Reporting Guide" in June, 1991.
- othe "Reporting Guide" states new specific definitional criteria with which the Agency, for the first time, defines as 'distinguishable neurotoxicological effects'; such criteria/guidance not expressed in the 1978 Statement of Interpretation.[5];

- othe "Reporting Guide" provides new review/ reporting criteria for irritation and sensitization studies; such criteria not previously found in the 1978 Statement of Interpretation/Enforcement Policy.
- othe "Reporting Guide" publicizes certain EPA Q/A criteria issued to the Monsanto Co. in 1989 which are not in the Statement of Interpretation; have never been published in the Federal Register or distributed by the EPA to the Regulatee. Such Q/A establishes new reporting criteria not previously found in the 1978 Statement of Interpretation/Enforcement Policy .

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[4]The 'status reports' address the significance, if any, of particular information reported to the Agency, rather than stating EPA's interpretation of §8(e) reporting criteria. In the infrequent instances in which the status reports contain discussion of reportability, the analysis is invariably quite limited, without substantial supporting scientific or legal rationale.

[5] *See, e.g,* 10/2/91 letter from Du Pont to EPA regarding the definition of 'serious and prolonged effects' as this term may relate to transient anesthetic effects observed at lethal levels; 10/1/91 letter from the American Petroleum Institute to EPA regarding clarification of the Reporting Guide criteria.

In discharging its responsibilities, an administrative agency must give the regulated community fair and adequate warning to as what constitutes noncompliance for which penalties may be assessed.

> Among the myriad applications of the due process clause is the fundamental principle that statutes and regulations which purport to govern conduct must give an adequate warning of what they command or forbid.... Even a regulation which governs purely economic or commercial activities, if its violation can engender penalties, must be so framed as to provide a constitutionally adequate warning to those whose activities are governed.

Diebold, Inc. v. Marshall, 585 F.2d 1327, 1335-36 (D.C. Cir. 1978). *See also*, Rollins Environemntal Services (NJ) Inc. v. U.S. Environmental Protection Agency, 937 F. 2d 649 (D.C. Cir. 1991).

While neither the are rules, This principle has been applied to hold that agency 'clarification', such as the Statement of Interpretation, the "Reporting Guide" nor the April 1992 amendments will not applied retroactively.

> ...a federal court will not retroactively apply an unforeseeable interpretation of an administrative regulation to the detriment of a regulated party on the theory that the post hoc interpretation asserted by the Agency is generally consistent with the policies underlying the Agency's regulatory program, when the semantic meaning of the regulations, as previously drafted and construed by the appropriate agency, does not support the interpretation which that agency urges upon the court.

Standard Oil Co. v. Federal Energy Administration, 453 F. Supp. 203, 240 (N.D. Ohio 1978), aff'd sub nom. Standard Oil Co. v. Department of Energy, 596 F.2d 1029 (Em. App. 1978):

The 1978 Statement of Interpretation does not provide adequate notice of, and indeed conflicts with, the Agency's current position at §8(e) requires reporting of all 'positive' toxicological findings without regard to an assessment of their relevance to human health. In accordance with the statute, EPA's 1978 Statement of Interpretation requires the regulated community to use scientific judgment to evaluate the significance of toxicological findings and to determining whether they reasonably support a conclusion of a substantial risk. Part V of the Statement of Interpretation urges persons to consider "the fact or probability" of an effect's occurrence. Similarly, the 1978 Statement of Interpretation stresses that an animal study is reportable only when "it contains reliable evidence ascribing the effect to the chemical." 43 Fed Reg. at 11112. Moreover, EPA's Statement of Interpretation defines the substantiality of risk as a function of both the seriousness of the effect and the probability of its occurrence. 43 Fed Reg 11110 (1978). Earlier Agency interpretation also emphasized the "substantial" nature of a §8(e) determination. See 42 Fed Reg 45362, 45363

(1977). [Section 8(e) findings require "extraordinary exposure to a chemical substance...which critically imperil human health or the environment"].

The recently issued "Reporting Guide" and April 1992 Amendment guidance requires reporting beyond and inconsistent with that required by the Statement of Interpretation. Given the statute and the Statement of Interpretation's explicit focus on substantial human or environmental risk, whether a substance poses a "substantial risk" of injury requires the application of scientific judgment to the available data on a case-by-case basis.

If an overall weight-of-evidence analysis indicates that this classification is unwarranted, reporting should be unnecessary under §8(e) because the available data will not "reasonably support the conclusion" that the chemical presents a substantial risk of serious adverse consequences to human health.

Neither the legislative history of §8(e) nor the plain meaning of the statute support EPA's recent lowering of the reporting threshold that TSCA §8(e) was intended to be a sweeping information gathering mechanism. In introducing the new version of the toxic substances legislation, Representative Eckhart included for the record discussion of the specific changes from the version of H. R. 10318 reported by the Consumer Protection and Finance Subcommittee in December 1975. One of these changes was to modify the standard for reporting under §8(e). The standard in the House version was changed from "causes or contributes to an unreasonable risk" to "causes or significantly contributes to a substantial risk". This particular change was one of several made in TSCA §8 to avoid placing an undue burden on the regulated community. The final changes to focus the scope of Section 8(e) were made in the version reported by the Conference Committee.

The word "substantial" means "considerable in importance, value, degree, amount or extent". Therefore, as generally understood, a "substantial risk" is one which will affect a considerable number of people or portion of the environment, will cause serious injury and is based on reasonably sound scientific analysis or data. Support for the interpretation can be found in a similar provision in the Consumer Product Safety Act. Section 15 of the CPSA defines a "substantial product hazard" to be:

> "a product defect which because of the pattern of defect, the number of defective products distributed in commerce, the severity of the risk, or otherwise, creates a substantial risk of injury to the public."

Similarly, EPA has interpreted the word 'substantial' as a quantitative measurement. Thus, a 'substantial risk' is a risk that can be quantified, *See,* 56 Fed Reg 32292, 32297 (7/15/91). Finally, since information pertinent to the exposure of humans or the environment to chemical substances or mixtures may be obtained by EPA through Sections 8(a) and 8(d) regardless of the degree of potential risk, §8(e) has specialized function. Consequently, information subject to §8(e) reporting should be of a type which would lead a reasonable man to conclude that some type action was required immediately to prevent injury to health or the environment.

Attachment

Comparison:

Reporting triggers found in the 1978 "Statement of Interpretation/ Enforcement Policy",43 Fed Reg 11110 (3/16/78) and the June 1991 *Section 8(e) Guide.*

TEST TYPE	1978 POLICY CRITERIA EXIST?	New 1991 GUIDE CRITERIA EXIST?
ACUTE LETHALITY		
Oral	N}	Y}
Dermal	N}	Y}
Inhalation (Vapors)	}[6]	}[7]
aerosol	N}	Y}
dusts/ particles	N}	Y}
SKIN IRRITATION	N	Y[8]
SKIN SENSITIZATION (ANIMALS)	N	Y[9]
EYE IRRITATION	N	Y[10]
SUBCHRONIC (ORAL/DERMAL/INHALATION)	N	Y[11]
REPRODUCTION STUDY	N	Y[12]
DEVELOPMENTAL TOX	Y[13]	Y[14]

[6] 43 Fed Reg at 11114, comment 14:
"This policy statements directs the reporitng of specifiec effects when unknown to the Administrator. Many routine tests are based on a knowledge of toxicity associated with a chemicalL unknown effects occurring during such a range test may have to be reported if they are those of concern tot he Agency and if the information meets the criteria set forth in Parts V and VII."

[7] Guide at pp.22, 29-31.

[8] Guide at pp-34-36.

[9] Guide at pp-34-36.

[10] Guide at pp-34-36.

[11] Guide at pp-22; 36-37.

[12] Guide at pp-22

[13] 43 Fed Reg at 11112
"Birth Defects" listed.

[14] Guide at pp-22

NEUROTOXICITY	N	Y[15]
CARCINOGENICITY	Y[16]	Y[17]
MUTAGENICITY		
In Vitro	Y}[18]	Y} [19]
In Vivo	Y}	Y}
ENVIRONMENTAL		
Bioaccumulation	Y}	N
Bioconcentration	Y}[20]	N
Oct/water Part. Coeff.	Y}	N
Acute Fish	N	N
Acute Daphnia	N	N
Subchronic Fish	N	N
Subchronic Daphnia	N	N
Chronic Fish	N	N
AVIAN		
Acute	N	N
Reproductive	N	N
Reprodcutive	N	N

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[15] Guide at pp-23; 33-34.

[16] 43 Fed Reg at 11112
"Cancer" listed

[17] Guide at pp-21.

[18] 43 Fed Reg at 11112; 11115 at Comment 15
"Mutagenicity" listed/ *in vivo* vs *invitro* discussed; discussion of "Ames test".

[19] Guide at pp-23.

[20] 43 Fed Reg at 11112; 11115 at Comment 16.

(9)

CAS # 7550-45-0
Chem: Titanium Tetrachloride (99.5%)
Title: Inhalation Approximate Lethal Concentration
Titanium Tetrachloride (99.5%)
8E Ref: 8EHQ-0984-0530
Summary of Effects: Effects include the following:

- ALC varied, but at 60-100% relative humidity, the ALC was 0.11 mg TiCl4/1 in air.

INHALATION APPROXIMATE LETHAL CONCENTRATION
TITANIUM TETRACHLORIDE (99.5%)

Haskell Laboratory Report No. 630-77

Medical Research Project No. 2795

Report by: Bruce A. Burgess
Bruce A. Burgess
Toxicologist

Approved by: Henry J. Trochimowicz
Henry J. Trochimowicz
Chief, Inhalation Toxicology Section

BAB:vls
DATE ISSUED: August 26, 1977
N.B. E-15646, p. 1-95

INHALATION APPROXIMATE LETHAL CONCENTRATION TITANIUM TETRACHLORIDE (99.5%)

Haskell Laboratory Report No. 630-77

Medical Research Project No. 2795

Material Tested	Haskell No.	Other Codes	Sample Ready	Submitted by
Titanium Tetrachloride (99.5%)	11,266	$TiCl_4$ "Tickle"	6/8/77	H. N. Simon, Pigments Dept., Edge Moor Plant

INTRODUCTION

Titanium tetrachloride ($TiCl_4$) has several important applications as an industrial intermediate. One such application for Du Pont is its role as the precursor to titanium dioxide (TiO_2), important as a white pigment base.

There has been considerable interest displayed in the toxicity of $TiCl_4$. This is evidenced by the numerous toxicity studies on $TiCl_4$ reported in the literature. It is generally accepted, in those studies dealing with inhalation toxicity, that the toxicity of the aerosol formed as a result of the hydrolysis of $TiCl_4$ is more severe than that of equivalent amounts of pure HCl. Agreement on a lethal concentration, however, is poor. For example, Mel' nihova[1] reports a two-hour ALC in rats of 0.6 mg $TiCl_4$/liter air while another report[7] cites an LC_{50} in mice of 0.01 mg $TiCl_4$/liter air.

Because of literature uncertainty and the importance of $TiCl_4$ as an intermediate in the production of TiO_2, this project was conducted to more carefully determine the acute toxicity of $TiCl_4$ and to generate a data base for more prolonged toxicity investigations.

PROCEDURE

The test atmosphere was generated by bubbling dry nitrogen (cryogenic source) through a gas bubbler containing the titanium tetrachloride. The resultant stream was then mixed with the bulk of the chamber make-up air before being fed tangentially into the top of the exposure chamber. For these exposures, a 125 L Rochester-style chamber (stainless steel and glass construction) was employed. All exposures were conducted with total air flows of about 35 l/min., with concentrations controlled by minor adjustments in the nitrogen generation flow.

PROCEDURE (Continued)

Chamber humidity was varied throughout the exposures to provide a basis for estimating the effect of humidity on the toxicity of $TiCl_4$. Low humidity was achieved through fabricating the chamber air mixture by mixing dry nitrogen (cryogenic source) with medical grade oxygen. Intermediate humidities were obtained by simply drawing room air into the chamber as make-up air. High humidity conditions were achieved by adding appropriate amounts of a high humidity air stream to a room-air type exposure.

Six male ChR-CD rats, ranging in initial body weight between 240-300 grams, were exposed in single four-hour acute exposures. Following each exposure, surviving rats were retained for a 14-day recovery and observation period.

ANALYTICAL METHOD

Chamber air samples were collected by impinging chamber air through a midget impinger containing 10 ml of 0.1 N NaOH. The outlet of the impinger then passed through a 2.5 cm Gelman Type A-E glass fiber filter (for particulate collection). Collection of samples in this fashion was shown to be complete for total chloride. The filter was then dropped into the impinger solution and, after about five minutes, 5-6 drops of glacial acetic acid was added to the solution to adjust its pH to a range of 5-6. Solution concentrations were then determined, from comparison with standard solutions, using a combination chloride ion-specific electrode (Orion model 96-17). Standard solutions were prepared both from reagent grade sodium chloride and from the $TiCl_4$ sample. This demonstrated that, in the collection matrix described above, four chloride ions are evolved per molecule of $TiCl_4$.

RESULTS

The acute toxicity of titanium tetrachloride appears to be a function of large changes in humidity. In these experiments it was shown that at relative humidities between ~60-100% (at 25°C), the ALC of titanium tetrachloride is approximately three fold lower than the ALC determined at ~30-35% relative humidity. The most severe toxicity occurs in the 60-100% relative humidity region which will probably be typical of plant conditions.

RESULTS (Continued)

The experimental data is presented below:

Chamber Concentration (as mg $TiCl_4$/1 air)*	Relative Humidity (@ 25°C)**	Dose Response (# deaths/# exposed)
0.044	30-35%	0/6
0.160	↓	0/6
0.160		0/6
0.166		0/6
0.296		6/6 (ALC)
0.395		2/6
0.473		5/6
0.824		6/6
0.855		5/6
0.045	60-65%	0/6
0.108	↓	1/6 (ALC)
0.111		1/6
0.113		2/6
0.170	> 95%	2/6

It appears from this data that higher humidity results in increased toxicity from titanium tetrachloride. This correlates with more extensive hydrolysis of titanium tetrachloride under these higher humidities.

This increase in toxicity with increased humidity was correlated to the extent of hydrolysis of titanium tetrachloride by the following experiment. Glass fiber filters were placed before the impingers (instead of following) to collect all particulate actually generated in the chamber atmosphere. These filters were analyzed separately for total chloride and compared to the chloride collected in the impingers. In an exposure at

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* It is important to understand that these concentrations are expressed as mg $TiCl_4$/1 air. In the real case, the chamber atmosphere consisted of a fog-like aerosol containing all of the hydrolysis components of $TiCl_4$ and $TiCl_4$ itself. Actual analytical measurements were indirect, calculating the $TiCl_4$ concentrations from the resultant total chloride values.

** Chamber humidities were determined using a Bendix Psychron® (Model #566-2).

RESULTS (Continued)

30-35% relative humidity, only 13-15% of the total chloride was found in the particulate collected on the filter (the remainder having passed through the filter in a volatile form). In another exposure run at 60-65% relative humidity, 60-80% of the total chloride measured was collected by the filter. Thus, a logical trend was followed, higher humidities resulting in more extensive hydrolysis of titanium tetrachloride.

No striking clinical observations were noted. Generally there was only labored respiration, varying with exposure severity. All deaths occurred either during or immediately post-exposure, the surviving rats gaining weight at a normal rate.

SUMMARY

The acute inhalation toxicity of $TiCl_4$ was examined in four-hour exposures on male ChR-CD rats. The ALC was found to vary with relative humidity, but at 60-100% relative humidity (at 25°C), the ALC of $TiCl_4$ was found to be 0.11 mg $TiCl_4$/l air. This value is considered highly toxic on an acute inhalation basis.

BAB:vls
Report No. 630-77

PERTINANT LITERATURE

1. Mel'nikova, E. A., Gig Sanit. 23(5): 27-31 (1958) (CA 52: 14866) (J-2262)

2. Sanotskii, I. V., Prom. Toksikologiya Moscow, Sb., 213-19 (1960) (CA 57: 4977c).

3. Mel'nikova, E. A., Trud. Pervogo Moskov. Med. Inst., No. 5, 13-19 (1959) (CA 54: 19958).

4. Mogilevskaya, O. Ya., et al., Tsvetrye Metal: 30(4): 51-5 (1956) (CA 51: 13197).

5. _____, Toksikol. Novykh Prom. Khim. Veschestv., No. 2, 69-75 (1961) (CA 58: 869).

6. Mezentsiva, N. V. et al., Toksikol. Redkikh Metal., 58-71 (1963) (CA 60: 4681).

7. _____, N. T. I. S. Report AEC-TR-6710-41-67 (Registry of Toxic Effects of Chemical Substances).

Triage of 8(e) Submissions

Date sent to triage: _____ NON-CAP (CAP)

Submission number: 13166A TSCA Inventory: (Y) N D

Study type (circle appropriate):

Group 1 - Dick Clements (1 copy total)

ECO AQUATO

Group 2 - Ernie Falke (1 copy total)

(ATOX) SBTOX SEN w/NEUR

Group 3 - Elizabeth Margosches (1 copy each)

STOX CTOX EPI RTOX GTOX

STOX/ONCO CTOX/ONCO IMMUNO CYTO NEUR

Other (FATE, EXPO, MET, etc.): _____

Notes:

THIS IS THE ORIGINAL 8(e) SUBMISSION; PLEASE REFILE AFTER TRIAGE DATABASE ENTRY

EHS list - 100# mont. 296 mg/m^3

For Contractor Use Only

entire document: (0) 1 2 **pages** 1,9 **pages** _____

Notes:

Contractor reviewer : JW **Date:** ~~1/24~~ 1/24/96

CECATS\TRIAGE TRACKING DBASE ENTRY FORM

CECATS DATA:
Submission # 8EHQ- 0992 - 131666 SEQ. A

TYPE: (INT.) SUPP FLWP

SUBMITTER NAME: E. I. Dupont de Nemours and Company

INFORMATION REQUESTED: FLWP DATE:
0501 NO INFO REQUESTED
0502 INFO REQUESTED (TECH)
0503 INFO REQUESTED (VOL ACTIONS)
0504 INFO REQUESTED (REPORTING RATIONALE)

DISPOSITION:
(0639) REFER TO CHEMICAL SCREENING
(0678) CAP NOTICE

VOLUNTARY ACTIONS:
(0401) NO ACTION REPORTED
0402 STUDIES PLANNED/UNDERWAY
0403 NOTIFICATION OF WORKERS/USERS
0404 LABEL/MSDS CHANGES
0405 PROCESS/HANDLING CHANGES
0406 APP./USE DISCONTINUED
0407 PRODUCTION DISCONTINUED
0408 CONFIDENTIAL

SUB. DATE: 09/11/92 OTS DATE: 09/22/92 CSRAD DATE: 03/24/95

CHEMICAL NAME: CAS#

7550 - 45 - 0

INFORMATION TYPE:		P F C
0201	ONCO (HUMAN)	01 02 04
0202	ONCO (ANIMAL)	01 02 04
0203	CELL TRANS (IN VITRO)	01 02 04
0204	MUTA (IN VITRO)	01 02 04
0205	MUTA (IN VIVO)	01 02 04
0206	REPRO/TERATO (HUMAN)	01 02 04
0207	REPRO/TERATO (ANIMAL)	01 02 04
0208	NEURO (HUMAN)	01 02 04
0209	NEURO (ANIMAL)	01 02 04
0210	ACUTE TOX. (HUMAN)	01 02 04
0211	CHR. TOX. (HUMAN)	01 02 04
(0212)	ACUTE TOX. (ANIMAL)	01 02 04
0213	SUB ACUTE TOX (ANIMAL)	01 02 04
0214	SUB CHRONIC TOX (ANIMAL)	01 02 04
0215	CHRONIC TOX (ANIMAL)	01 02 04

INFORMATION TYPE:		P F C
0216	EPI/CLIN	01 02 04
0217	HUMAN EXPOS (PROD CONTAM)	01 02 04
0218	HUMAN EXPOS (ACCIDENTAL)	01 02 04
0219	HUMAN EXPOS (MONITORING)	01 02 04
0220	ECO/AQUA TOX	01 02 04
0221	ENV. OCCC/REL/FATE	01 02 04
0222	EMER INCI OF ENV CONTAM	01 02 04
0223	RESPONSE REQEST DELAY	01 02 04
0224	PROD/COMP/CHEM ID	01 02 04
0225	REPORTING RATIONALE	01 02 04
0226	CONFIDENTIAL	01 02 04
0227	ALLERG (HUMAN)	01 02 04
0228	ALLERG (ANIMAL)	01 02 04
0239	METAB/PHARMACO (ANIMAL)	01 02 04
0240	METAB/PHARMACO (HUMAN)	01 02 04

INFORMATION TYPE:		P F C
0241	IMMUNO (ANIMAL)	01 02 04
0242	IMMUNO (HUMAN)	01 02 04
0243	CHEM/PHYS PROP	01 02 04
0244	CLASTO (IN VITRO)	01 02 04
0245	CLASTO (ANIMAL)	01 02 04
0246	CLASTO (HUMAN)	01 02 04
0247	DNA DAM/REPAIR	01 02 04
(0248)	PROD/USE/PROC	01 02 04
0251	MSDS	01 02 04
0299	OTHER	01 02 04

TRIAGE DATA: NON-CBI INVENTORY
(YES)
CAS SR NO
IN TERMINI

ONGOING REVIEW
YES (DROP/REFER)
NO (CONTINUE)
REFER

SPECIES: RAT

TOXICOLOGICAL CONCERN:
LOW
(MED)
HIGH

USE: Industrial intermediate - white pigment base

PRODUCTION:

COMMENTS: 8EHQ - 0984 - 0530

13166A

M N

Acute inhalation toxicity in rats is of ~~moderate~~ high concern. Single 4-hour inhalation exposures to male ChR-CD rats (6/group) revealed that the toxicity of the compound is a function of humidity. Levels of 44, 160, 166, 296, 395, 473, 824, or 855 mg/m^3 (30-35% relative humidity @25∘C) were lethal to 0/6, 0/12, 0/6, 6/6, 2/6, 5/6, 6/6, and 5/6, respectively; levels of 45, 108, 111, or 113 mg/m^3 (60-65% relative humidity @25∘C) were lethal to 0/6, 1/6, 1/6, and 2/6, respectively; and a level of 170 mg/m^3 (>95% relative humidity @25∘C) was lethal to 2/6. With the exception of labored breathing, there were no significant clinical signs.